COHESIVE SEDIMENTS RESEARCH

May 1997 Volume 6 Issue 1

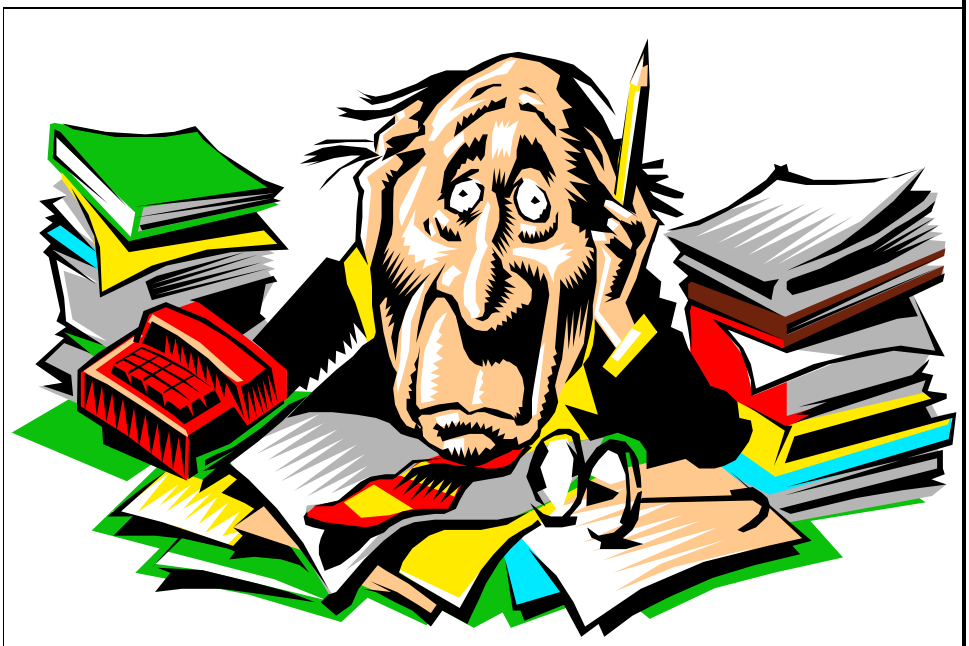
Some Non-Cohesive Thoughts

"Merely having an open mind is nothing. The object of opening the mind, as of opening the mouth, is to shut it again on something solid." Gilbert K. Chesterton.

Maybe you will discover something solid is in this issue that your mind can use.

Dr. Erik Toorman, a valued member of the CSRN, has established a separate and independent electronic Cohesive Sediment Research News and Discussion group (see page 5). His discussion and list server (CSRList) is a complementary means of announcements and new publications to the CSRN. The CSRList has the advantage of bringing hot news (text only) directly and timely to the CSRList members via the world wide web. The CSRList is owned, edited, and maintained by Dr. Toorman.

This issue of the CSRN is being sent to you via the electronic CSRN list server at the Coastal and Hydraulics Laboratory, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, U.S.A. This is how we will distribute the CSRN in the future. Our web address is http://hlnet.wes.army.mil/research/commits/cth/publications.htm. Please browse our web page—you might find something interesting and possibly even useful.



Your contributions to the CSRN should be easier and quicker by using e-mail and the CSRList. So please send me something virtual. Thanks.

Your comments on the electronic distribution method and contents of the CSRN and the CSRList are encouraged and welcomed. Contact me for the CSRN and Dr. Toorman for the CSRList.

Bill Boyt
boyt@hl.wes.army.mil
601-634-3249 (voice)
601-634-2823 (fax)

inside...

Dispersal of Cohesive Sediment Knowledge

Although Sediment Transport has been taught as a regular course at several universities in USA over the past many decades, these courses have been limited only to the non-cohesive sediments. A regular course on cohesive sediments has probably been taught only at two universities in USA, viz. at the University of Florida by Professor E. Partheniades and Professor A. J. Mehta, and at the University of California, Davis, by Professor R. B. Krone. These were taught until about mid-eighties. Over the subsequent years, substantial new knowledge has been acquired through research on cohesive sediments and new numerical models have also been developed. With an objective of sharing this knowledge with the next generation, Graduate Level courses were taught at two places during the year 1996. Here are the details:

A. Instructor: Dr. A. J. Mehta
- Title: Coastal Cohesive Sediment Transport
- University: University of Florida, Gainesville, Florida
- Location: University of Florida, Gainesville, Florida
- Duration: Summer 1996

Course Objective:

The course was designed to provide an in depth study of cohesive sediment processes based on the up to date results of research and development. PC-based models developed at the University of Florida are explained and their use is practiced through solving problems.

Course Outline:

1. Fine-grained sediment properties and transport processes
2. Settling velocity and concentration profiles
3. Deposition under flow
4. Wave-bottom mud interaction
5. Non-equilibrium suspension profile modeling
6. Fluid mud generation by waves
7. Consolidation
8. Process parametric measurements
9. Sedimentation related design simulations
10. Test problems.

B. Instructor: Dr. T. M. (Nana) Parchure
- Title: Estuarine Sediment Transport Processes
- University: Mississippi State University, Mississippi
- Location: Waterways Experiment Station, Vicksburg, Mississippi
- Duration: August-December 1996

Course Objective:

The course was intentionally broad-based which provided an overview of Estuarine Sediment Transport Processes. It covered cohesive and non-cohesive sediments. Fundamental theories were included and sediment transport rate formulae were explained. Field and laboratory practices were described. A limited literature review was presented. Several engineering

tions were covered. Preliminary information was offered on modeling packages available at WES on numerical simulation of sediment transport.

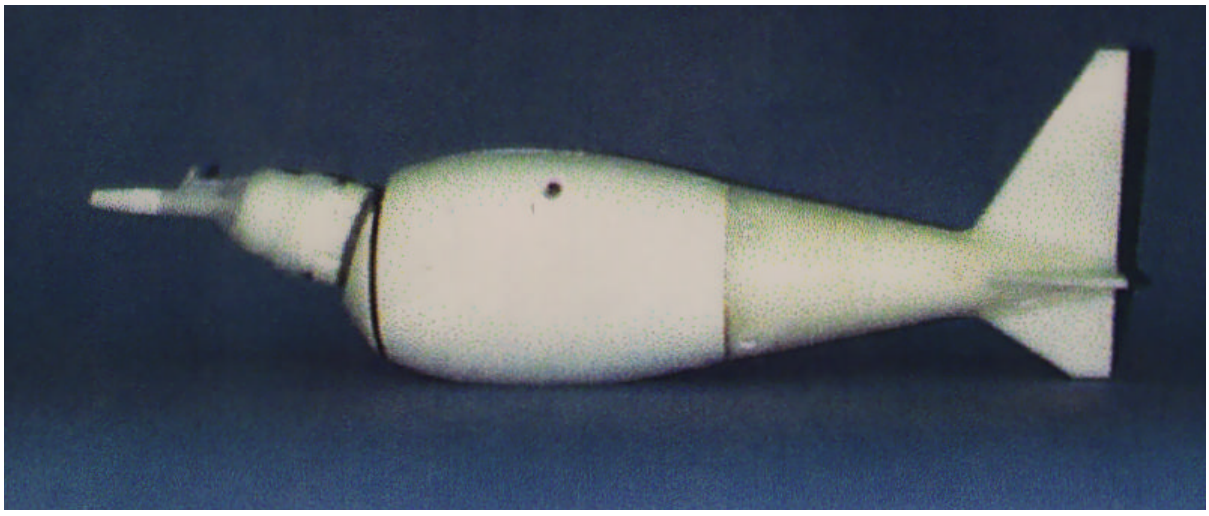
Course Outline:

1. Sediment classification
2. Physical properties and characterization of non-cohesive sediments
3. Properties and characterization of cohesive sediments
4. Fluid Mechanics and Critical Shear Stress
5. Erosion and deposition
6. Field data collection and equipment
7. Laboratory data analysis and equipment
8. Wave-induced sediment transport
9. Applications
   - Sediment dynamics of tidal inlets
   - Estuarine sedimentation
   - Navigation channels and dredging
   - Coastal sediment dynamics
   - Estuarine Bank Protection
   - Beach erosion and protection
   - Environmental significance

Editors Note: If you are aware of academic courses in cohesive sediment transport, please submit a course outline, objective, and instructor's name and I will distribute them electronically.

New Samplers from The Federal Interagency Sedimentation Project (FISP)

Wayne O'Neal, Chief, FISP

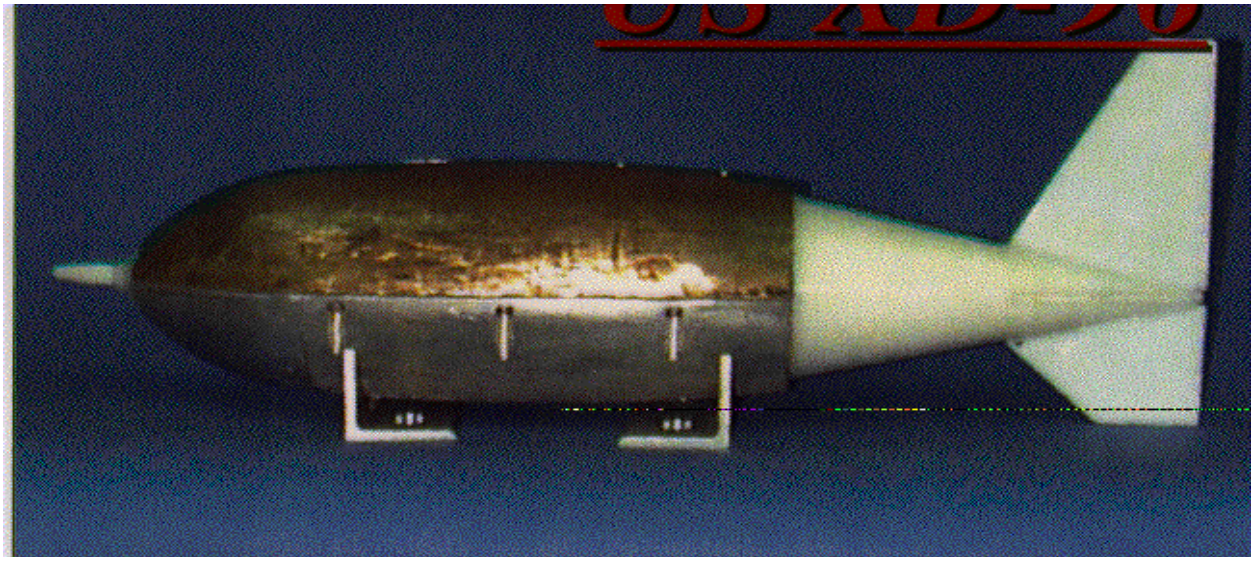


US XDH-95

The US XDH-95 sampler will be sent out in May 1997 for field evaluation by USGS District offices. The sampler will available (for purchase) by mid-summer.

The US XD-96 sampler is currently undergoing field testing by the FISP staff. Field evaluations by USGS District offices will begin in early summer. The sampler will be available (for purchase) by late sumer.

- Isokinetic hand-line surface-water sampler
- Approximate weight is 25 lbs



US XDH-96

- Isokinetic cable-suspended surface-water bag-type sampler.
- Approximate weight is 105 lbs.
- Meets the U.S. Geological Survey requirements as a “clean” water-quality sampler.
- Maximum sampling depth is projected to be approximately 100 ft.
- Sampling capacity is 3-liters.
- All metal parts are plastic coated.
- Field repairable.

Contact Wayne O’Neal, Chief
Federal Interagency Sedimentation Project (FISP)
c/o U.S. Army Engineer Waterways Experiment Station
3909 Halls Ferry Road
Vicksburg, Mississippi 39180-6199
Phone: 601-634-2624
Email: woneal@usgs.gov

U.S. GEOLOGICAL SURVEY SEDIMENT WORKSHOP

Mr. John R. Gray, Hydrologist/Sediment Specialist
U.S. Geological Survey

The U.S. Geological Survey (USGS) held a Sediment Workshop "Expanding USGS Sediment Research in the Today's USGS" on February 4-7, 1997. The first half-day of the workshop at the USGS National Center in Reston, Virginia, was devoted to presentations and a panel discussion from nine Federal agencies on the subject of "sediment research and monitoring needs." Discussions during the following 2.5 days of USGS-only meetings in Harpers Ferry, West Virginia, centered on how the USGS can better combine and utilize its sediment expertise that now includes new capabilities resulting from incorporation of the former National Biological Service as the USGS's Biological Resources Division. This new expertise, part of which focuses on sediment, augments sediment expertise in the USGS's three other operating Divisions— Water Resources, Geologic, and National Mapping.

A description of the Workshop, and contributions from other Federal agencies and the USGS are available on the World Wide Web as follows:

http://wwwrvares.er.usgs.gov/osw/workshop/

Direct questions or comments to:

Mr. John R. Gray, Hydrologist/Sediment Specialist
U.S. Geological Survey
415 National Center
12201 Sunrise Valley Drive
Reston, VA 20191-5603
PHONE: 703 648-5318
FAX: 703 648-5295
EMAIL: jrgray@usgs.gov/

SYMPOSIUM

INTERCOH 98, the Fifth International Symposium on Nearshore and Estuarine Cohesive Sediment Transport, will be held in Korea in summer 1998. The symposium series initiated by Ashish J. Mehta of the University of Florida, USA, brings together leading researchers from around the world to share information and address significant challenges in cohesive sediments behavior.

Dong-Young Lee of the Korean Ocean Research and Development Institute is chairing the INTERCOH 98 organizing committee. The call for papers will be appearing soon.

Cohesive Sediment Research News & Discussion List

Started February 1997
Last revision: February 1997
Maintained and edited by
Dr. Erik A. Toorman
Hydraulics Laboratory, K.U. Leuven, Belgium

The idea of creating this list was launched at INTERCOH'94. The approval by the European Community to fund the COSINUS Research Project, in which 11 European institutes collaborate, has triggered the decision to start this list up, to share news of developments in Cohesive Sediment Research and allow interaction with the CSR community worldwide.

For information on the COSINUS project, see its WEB pages: http://sun-hydr-01.bwk.kuleuven.ac.be/hydraulics/EToorman/cosinus.html.

The COSINUS project will only be announced after its official start, expected for July 1997.

The aim of this CSR list is to distribute any news on scientific developments in the field of cohesive sediment research. This includes topics such as:
- Physico-chemical properties and characterization
- Biological effects
- Mud rheology
- Short reports on field and laboratory experiments
- Advances in process modelling
- Integrated numerical modelling

It also allows you to post a request (e.g. finding a reference, searching a data set, etc.) or a question (e.g. when you get stuck in your research...).

You can send your contributions to: CSRList@ccl.kuleuven.ac.be

This list is a "moderated" list, i.e. your contributions will first go to the editor before being distributed to the list members. If you can accept and follow the next rules, your contribution will be forwarded without problem. When there is a problem, the editor will contact you to discuss it.

Rules:
- NO advertising of commercial products is allowed
- Allowed items:
- Abstracts of papers, reports and other scientific publications
- Announcements of conferences, seminars, workshops, etc.
- Book and paper reviews
- Questions and requests
- Contributions should be no longer than 200 lines.

Users new to the use of L-Soft's LISTSERV are encouraged to read the online files LISTSERV REFCARD andLISTSERV GENNTRO, which can be obtained by sending the following commands in the body of a mail message to LISTSERV@LISTSERV.NET

INFO REFCARD
INFO GENINTRO

LISTSERV commands related to the CSRList should be sent to:
LIST-SERV@ccl.kuleuven.ac.be

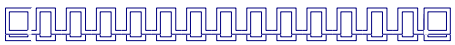
To subscribe to the CSRList, one should send the following message:

SUBscribe CSRList firstname lastname

to: LIST-SERV@ccl.kuleuven.ac.be.

To send a message to all the people currently subscribed to the list, just send mail to csrlist@cc1.kuleuven.ac.be. This is called "sending mail to the list," because you send mail to a single address and LISTSERV makes copies for all the people who have subscribed. This address (csrlist@cc1.kuleuven.ac.be) is also called the "list address." You must never try to send any command to that address, as it would be distributed to all the people who have subscribed. All commands must be sent to the "LISTSERV address," listserv@cc1.kuleuven.ac.be. It is very important to understand the difference between the two, but fortunately it is not complicated. The LISTSERV address is like a FAX number, and the list address is like a normal phone line. If you make your FAX call

someone's regular phone number by mistake, it will be an unpleasant experience for him but you will probably be excused the first time. If you do it regularly, however, he will probably get upset and send you a nasty complaint. It is the same with mailing lists, with the difference that you are calling hundreds or thousands of people at the same time, so a lot more people get annoyed if you use



the wrong number.

You may leave the list at any time by sending a "SIGNOFF CSRLIST" command to listserv@cc1.kuleuven.ac.be. You can also tell LISTSERV how you want it to confirm the receipt of messages you send to the list. If you do not trust the system, send a "SET CSRLIST REPRO" command and LISTSERV will send you a copy of your own messages, so that you can see that the message was distributed and did not get damaged on the way. After a while you may find that this is getting annoying, especially if your mail program does not tell you that the message is from you when it informs you that new mail has arrived from CSRLIST. If you send a "SET CSRLIST ACK NOREPRO" command, LISTSERV will mail you a short acknowledgment instead, which will look different in your mailbox directory. With most mail programs you will know immediately that this is an acknowledgment you can read later. Finally, you can turn off acknowledgment completely with "Set CSRLIST NOACK NOREPRO."

Following instructions from the list owner, your subscription options have been set to "REPRO FULLHDR" rather than the usual LISTSERV defaults. For more information about subscription options, send a "QUERY CSRLIST" command to listserv@cc1.kuleuven.ac.be.

Contributions sent to this list are automatically archieved. You can get a list of the available archive files by sending an "INDEX CSRLIST" command to listserv@cc1.kuleuven.ac.be. You can then order these files with a "GET CSRLIST LOGxxxx" command, or using LISTSERV's database search facilities. Send

an "INFO DATABASE" command for more information on the latter.

IMPORTANT: This list is confidential. You should not publicly mention its existence, or forward copies of information you have obtained from it to third parties. Please note that the "GIVE" command is automatically disabled for all archive files.

Please note that it is presently possible for other people to determine that you are signed up to the list through the use of the "REVIEW" command, which returns the e-mail address and name of all the subscribers. If you do not want your name to be visible, just issue a "SET CSRLIST CONCEAL" command.

More information on LISTSERV commands can be found in the LISTSERV reference card, which you can retrieve by sending an 'INFO REFCARD" command to listserv@cc1.kuleuven.ac.be.

This list is owned, edited and maintained by:

Dr. Erik A. Toorman
Hydraulics Laboratory
Civil Engineering Department
Katholieke Universiteit Leuven
De Croylaan 2, B-3001 Heverlee, Belgium
Tel: +32.16.321659
Fax: +32.16.321989
Email: Erik.Toorman@bwk.kuleuven.ac.be

Contact the list owner for any problems.

"I find that a gread part of the information I have was acquired by looking up something and finding something else."
Franklin P. Adams

NEW BOOK INFORMATION
Cohesive Sediments

Edited by Nevill Burt, *HR Wallingford Ltd*, UK, Reg Parker, *Blackdown Consultants Ltd*, UK, and Jacqueline Watts, *HR Wallingford Ltd*, UK

Cohesive sediment transport is the attraction and movement of sediment particles in moving water. Cohesive sediment, or "mud," contributes to a wide range of design, maintenance and management problems in estuaries and coastal regions. The book discusses these issues and how to predict such movement in the future. The editors use the latest research and practical experience from both the engineers and the scientist's point of view.

Accumulation of sediment in navigation channels and births often result in the need for expensive dredging operations. Such developments can cause significant changes to the transport patterns of the sediment, so a good understanding of the likely changes is necessary before any engineering project can proceed. In addition, many pollutants are preferentially absorbed on to the fine cohseive fraction of the sediment and therefore for environmental reasons, it is important to be able to predict the movement of the sediment. The papers in this volume truly represent the definitive state of the art on the measurement and modelling of mud properties today.

CONTENTS INCLUDE:

* Conference overview
* Settling velocity
* Settling and consolidation
* General descriptive dynamics/case study
* Equipment and instrumentation
* Deposition and erosion
* Rheology and wave effects
* Modelling

CONFERENCE NEWS ITEM

The University of St. Andrews, Scotland, organized a conference at London, UK, in February 1997. Key-Note addresses were given by the following speakers:

Dr. Ashish Mehta, University of Florida, USA.
"An Assessment of Sediment Sources and Sinks at Muddy Shore"

Dr. Karl Amos, Bedford Institute of Oceanography, Canada.
"Stability of Intertidal Fine-grained Sediments: A Comparison Between Canadian and UK Estuaries"

Dr. Keith Dyer, Plymouth University, UK.
"European Initiative in Intertidal Mud Flat Research"

WELCOME: NEW CSRN MEMBERS

Matt Murphy
Sherkin Comment
Sherkin Island Marine Station
Sherkin Island, CO. CORK.
IRELAND
Phone: 353 28 20187
Fax: 353 28 20407

Carlos Figueroa
US Geological Survey
GSA Center
651 Federal Drive, Suite 400-15
Guaynabo, Puerto Rico 00965
Phone: 787 749-4346
E-mail: cfiguer@usgs.gov

Mike Elliott
Institue of Estuarine & Coastal Studies, and
Dept. of Biological Sciences
University of Hull
Hull, HU6 7RX, United Kingdom
Phone: 44 1482 465503
E-mail: m.elliott@biosci.hull.ac.uk

THEME SESSION ANNOUNCEMENT

Stephen C. Knowles

I am chairing a theme session at the 1997 Annual Meeting of the Geological Society of America (GSA), Salt Lake City, Utah, October 20-23, 1997. The goals of the session entitled "Origin of Mudrocks: Modern Processes and Ancient Examples" are to present results of research on both modern fine-grained sediment processes and mudrock deposits, and provide a forum for discussion among these two, often independent, research communities. Because this is a theme session at the meeting, presentations can not be invited, but can be encouraged. I would like for you to consider presenting results of some of your recent research, or perhaps a summary of past work. I think the geologists at this meeting will be very interested in learning about the processes that were involved with the deposits they observe and modern fine-grained sedimentologists and engineers will probably find the results of mudrock analysis interesting as well.

The actual time of the session has not been scheduled yet, however, I have requested a session early in the week to ensure good attendance. Abstracts may be submitted on the internet at http://www.geosociety.org or by paper form, but not both. Forms may be obtained from Nancy Carlson, Abstracts Coordinator, (303) 447-2020 X 161 or email ncarlson@geosociety.org.

Please use the following procedure when filling out the abstract form:

1. On the appropriate line (section 3), write in the theme number (T51). If electronically submitting, choose T51 from available selection.
2. On the following line (for paper copies), write in the first five words of the theme title, as published.
3. From the list of three disciplines given for each theme, check ONE (and ONLY ONE) on the right side of the abstract form.
4. As stated on the abstract form, all theme session abstracts should be sent DIRECTLY to GSA and MUST be received BEFORE JULY 8, 1997.

I am concentrating my efforts in contacting people involved with modern fine-grained sediment research. Don Wilson, University of Montana, is co-chairing the session, and will be encouraging submission of abstracts from those involved with mudrock analysis. Please contact me by phone or email: sknowles@email.unc.edu if you have any questions about the theme session or the abstract submission process. Information on housing and travel services will be available in
June 1997.

Stephen C. Knowles
University of North Carolina-Chapel Hill
Institute of Marine Sciences
3431 Arendell Street
Morehead City, North Carolina 28557
Phone: 919 726-6841
FAX: 919 726-2426
Email: sknowles@email.unc.edu

"The most thoroughly wasted of all days is that on which one has not laughed."
Chamfort